

SONY

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HDW-650P

HD camcorder, offering 2.2 million pixels per colour, HDCAM recording and switchable between 50i, 59.94i and 25P scanning.



HDCAM has become the format of choice around the world for high quality HD programming across a wide range of production genres. Since launch over 43,000 HDCAM camcorders and VTRs have been purchased, and year-by-year Sony has continued to strengthen the line-up to offer new creative opportunities to the user.

For 2008, Sony has added a new camcorder to the HDCAM family, the HDW-650P.

The HDW-650P incorporates the latest developments in acquisition technology to capture breathtaking HD images. It can record pictures in 1080/50i and 59.94i interlace mode, as well as in 1080/25P where a natural 'film look' is required.

The camcorder features three newly developed 2/3-inch type Power HAD FX CCDs, a 14-bit A/D converter, and a state-of-the-art DSP LSI signal processing. This provides extremely wide tonal reproduction, as well as a high sensitivity of F12 at 50 Hz. A signal-to-noise ratio of up to 59dB is realised using a newly developed noise-suppression function.

The HDW-650P is equipped with many useful features as standard - including a 3.5-inch colour LCD screen located on the inside panel - all packaged into a well-balanced, reliable chassis.

Other benefits include two HD-SDI outputs, a down-converted SD output, selectable gamma characteristics (HyperGamma), interval recording, picture cache recording, and a slow shutter function - all provided as standard. Addition of an optional colour or monochrome viewfinder and an optional ECM series microphone completes the feature set.

This product comes with PrimeSupport - fast, hassle-free repairs and a helpline offering expert technical advice. Which gives you the peace of mind that Sony is looking after your equipment, and your business.

Features

Choice of HD Recording Formats, including both interlaced and progressive

The HDW-650P offers a choice of video formats for both frame rates and scanning mode. Acquisition of pictures at a resolution of 1920 x 1080 in 50i, 59.94i and 25P is provided.

Three 2/3-inch HD Power HAD FX CCDs

The HDW-650P is equipped with three 2/3-inch type 2.2-megapixel HD CCDs, which are also used in Sony's class leading HDC-1500 HD Camera.

Based on Sony's Power HAD FX sensor technology and the latest on-chip lens structure, the HDW-650P offers a high sensitivity of F11 at 59.94 Hz or F12 at 50 Hz.

Superb Signal-to-noise Ratio

A signal-to-noise ratio of 59dB can be achieved by activating the Noise Suppression (NS) mode of the HDW-650P, which helps to reduce the high-frequency noise elements of video signals using Sony's advanced digital processing technology.

14-bit A/D Conversion

The HDW-650P incorporates high-performance 14-bit A/D conversion so that images captured by the high-performance CCDs can be processed with maximum precision.

This high-resolution A/D conversion allows mid- to dark-tone areas of the picture to be faithfully reproduced. Thanks to the 14-bit A/D converter, pre-knee signal compression in highlighted areas can be eliminated, and the camera can clearly reproduce a high-luminance subject at a 600% dynamic range*.

*In 1080/50i and 59.94i mode.

3.5-inch* LCD

A large, easy-to-view, colour LCD screen on the HDW-650P camcorder's side panel enables operators to instantly review recorded footage - as well as access the camera's set-up menus, and view status indications such as the four channels of audio and the remaining time available from the tape and battery.

*Viewable area measured diagonally.

New Audio Capability: Digital Wireless Microphone Receiver

The HDW-650P is compatible with a range of microphones.

It is equipped with a slot to accommodate the DWR-S01D* digital wireless microphone receiver, which provides two-channel audio with stable and secure transmission tolerant to interference.

The status of the digital wireless microphone system can be monitored through both the camcorder's viewfinder and the LCD display.

Shotgun-type microphones, such as the ECM-680S/678/674, are also available as options.

*The DWR-S01D will be available in spring 2009

Well-balanced Compact Body

The ergonomic design of the HDW-650P provides optimum weight balance, allowing users to enjoy comfortable hand-held operation. Because its centre of gravity is located roughly at the centre point of the shoulder pad, operating the camera for long periods on the shoulder causes less strain on the supporting arm. The HDW-650P's light body weighs just 4.2 kg (9 lb 4 oz).

Down-conversion Capability

The HDW-650P is equipped with a built-in down-conversion system as standard. Down-converted pictures can be output via SD-SDI for SD post production or monitoring.

Picture Cache Recording

The HDW-650P offers a picture cache recording function that is especially useful.

Up to eight seconds of audio and video are buffered in the camcorder's memory before the Rec. start button is pressed (when in Standby mode).

This ensures that action up to eight seconds before the Rec. start button was pressed will still be captured. Cache recording works even before the tape is inserted into the drive - helping to prevent the loss of any unexpected, yet important events.

Slow Shutter*

The shutter speed of the HDW-650P is selectable down to a 16-frame period (in 2-, 3-, 4-, 5-, 6-, 7-, 8-, and 16-frame periods).

During this frame period, electrical charges accumulate on the CCDs, which dramatically increases sensitivity. This helps camera operators to shoot in extremely dark environments.

The Slow Shutter function also allows operators to use

shutter speeds longer than the frame rate, for enhanced shooting creativity. For example, when shooting a moving object, to create intentional blurring of the image.

*Requires a software upgrade, planned to be available in spring 2009.

Other Features Provided as Standard

- Four types of HyperGamma characteristic as standard: HyperGamma 1, 2, 3, and 4. Operators can select the best-suited preset gamma curve depending on the scene being shot and their desired 'look' for the image.
- Supports AES/EBU Digital Audio input, in addition to microphone input, +48 V microphone input, and line input
- Trigger REC function (HD-SDI Remote Function: REC Command)

Benefits

Superb High Definition pictures

The HDW-650P acquires pictures in 1080-line resolution, providing an unforgettable High Definition viewing experience for your audience.

Increased marketability of your programmes

HDCAM has achieved an enviable reputation for quality, and programmes shot in HDCAM are accepted by many of the world's most prestigious broadcasters. Shooting in HDCAM opens up new opportunities for international co-production and distribution.

Peace of mind for High Definition post production

Over 43,000 HDCAM VTRs and camcorders are in use worldwide, and the number of post houses equipped with HDCAM grows every day. You can relax in the knowledge that there is an HDCAM facility close by to add the finishing touches to your project.

Easy integration with Standard Definition

Today more and more programme makers are shooting HDCAM, with many of them using existing SD suites for post production. This approach provides many advantages. These include the lower cost associated with SD post production, and the benefit of retaining an exceptionally high quality HDCAM original recording for future distribution opportunities. And even when downconverted to SD, pictures from HDCAM camcorders will look noticeably better than those originated in SD.

Differentiation in a crowded market

HDCAM camcorders have built an unrivalled reputation for the production of the very best in quality programming, helping establish HDCAM as the preferred High Definition format worldwide. In today's multi-

channel world, shooting with the HDW-650P ensures that your pictures stand out to grab the attention of your viewers.

Ease-of-use for minimum re-training

The latest in a long line of digital camcorders from Sony, the HDW-650P retains the ergonomic design

and familiar operation for which Sony camcorders have become renowned. With the HDW-650P, you avoid expensive operational retraining and can generate great pictures from day one.

Technical Specifications

General	
Mass	4.2 kg (9 lb 4 oz) (without options) 5.9 kg (13 lb) (with VF, Mic, BCT-40HD cassette tape, BP-GL95 battery)
Power requirements	12 V DC +5.0/-1.0 V
Power Consumption	35 W (with 12 V DC supply, when recording, LCD monitor off)
Operating temperature	0 to 40°C (+32 to 104°F)
Storage temperature	-20 to +60°C (-4 to 140°F)
Operating humidity	25 to 85% (relative humidity)
Continuous operating time	Approx. 120 min. with BP-GL95 battery

Input/output connectors	
GEN LOCK IN	BNC type x1, 1.0 Vp-p, 75 Ω, unbalanced
TC IN	BNC type x1, 0.5 V to 18 Vp-p, 10 kΩ
AUDIO IN CH1/CH2	XLR type 3-pin (Female) x2, -60 dBu/+4 dBu/AES/EBU (0 dBu = 0.775 Vrms)
MIC IN	XLR type 5-pin (Female) x1, -50 dBu (LPF ON)
TEST OUT	BNC type x1, VBS/Y (component): 1.0 Vp-p, 75 Ω, unbalanced
HDSDI OUT	BNC type x1, HD-SDI: 0.8 Vp-p, unbalanced
HD/SD SDI OUT	BNC type x1, HDSDI/SDSDI: 0.8 Vp-p, unbalanced
AUDIO OUT	XLR type 5-pin (Male) x1, 0 dBm
TC OUT	BNC type x1, 1.0 Vp-p, 75 Ω
EARPHONE	Mini-jack x2, 8 Ω, -8 to -18 dBs variable
DC IN	XLR type 4-pin (Male) x1, 11 to 17 V DC
DC OUT	4-pin x1, 11 to 17 V DC, maximum rated current 0.5 A
LENS	12-pin x1, 11 to 17 V DC, maximum rated current 0.7 A
REMOTE	8-pin x1
LIGHT	2-pin x1

VTR section	
Recording format	HDCAM 59.94i/50i/25PsF
Tape speed	Approx. 96.7 mm/s (for 59.94i format) Approx. 80.7 mm/s (for 50i/25PsF format)
Recording/Playback time	For 59.94i format: 40 minutes (using BCT-40HD) For 50i/25PsF format: 48 minutes (using BCT-40HD)
Fast forward/Rewind time	Approx. 5 minutes (using BCT-40HD video cassette)
Recommended tape	Sony HDCAM cassette BCT-6HD/12HD/22HD/32HD/40HD
Sampling frequency	Y: 74.176 MHz (59.94i), 74.25 MHz (50i) Pb/Pr: 37.088 MHz (59.94i), 37.125 MHz (50i)
Quantization	10 bits/sample (8 bits sample for compression processing)
Channel coding	S-NRZI PR-IV
Compression	Coefficient recording system
Error correction	Reed-Solomon code
Error concealment	Adaptive three dimensional

Audio performance (with standard playback machine)

Frequency response	20 Hz to 20 kHz, +0.5 dB/-1.0 dB
Dynamic range	More than 85 dB (emphasis ON)
Distortion	Less than 0.08% (at 1kHz, reference level)
Cross talk	Less than -70 dB (at 1kHz)
Wow & flutter	Below measurable limit

Camera section (Performance)

Pickup device	3-chip 2/3-inch type IT CCD
Effective Picture elements (H x V)	1920 x 1080
Optical system	F1.4 prism (Equipped with Quartz Filter)
Lens mount	2/3-inch 48 bayonet mount

Built-in filters	CC filter (electric) A : Cross filter, B : 3200K, C : 4300K, D : 6300K ND filter (optical) 1: Clear, 2: 1/4 ND, 3: 1/16 ND, 4: 1/64 ND
Sensitivity (2000 lux, 89.9% reflectance)	F11 (system frequency: 59.94i) F12 (system frequency: 50i) (typical)
Minimum illumination	0.26 lx (F1.4 lens, +42 dB turbo gain)
Smear level	-135 dB
S/N ratio	54 dB (Noise suppressor off. 59 dB when noise suppressor is on.)
Modulation depth at 27.5 MHz	45% or more
Horizontal resolution	1000 TV Lines

Shutter speed	1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 (s) (at 59.94i format) 1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000 (s) (at 50i format) 1/33, 1/50, 1/60, 1/100, 1/250, 1/500, 1/1000, 1/2000 (s) (at 25PsF)
Clear Scan	60 Hz to 4300 Hz (at 59.94i format) 50Hz to 4700 Hz (at 50i format) 25Hz to 2300 Hz (at 25PsF format)
Programmable Gain	-6dB/-3dB/0dB/3dB/6dB/9dB/12dB/18dB/24dB/30dB/36dB/42dB

Supplied Accessories	
	CD-ROM manual (1)
	Operation manuals, English version (1)
	Shoulder strap (1)

Accessories

Batteries and Power Supplies

	AC-DN10 AC Adaptor/Charger		BC-M150 Battery Charger
	AC-DN2B AC Adapter (150W output) and Lithium-Ion battery charger		BP-GL65 Battery Pack
	BC-L500 Li-ion Battery Charger		BP-GL95 Rechargeable Lithium-ion Battery Pack
	BC-L70 Li-ion Battery Charger		BP-L80S Rechargeable Lithium-ion Battery Pack

Mixers and AV Amps



DMX-P01
Digital 4:2 Location mixer

Receivers



DWR-S01D
Dual Digital Wireless Microphone Receiver

Shotgun



ECM-674
Electret Condenser Microphone



ECM-680S
Shotgun electret condenser microphone



ECM-678
Electret Condenser Shotgun Microphone

Viewfinders

HDVF-20A
2-inch Type HD B/W CRT Viewfinder

Viewfinders



HDVF-C35W
HD Colour LCD Viewfinder

Cases



LC-777
Hard shell carrying case for Digital Betacam camcorders



LC-DS300SFT
Soft Carr.case For Dsr-300p/500wsp

Option Boards and Modules

RM-B150

Remote Control Unit

Tripods and Supports



VCT-14

TRIPOD ADAPTOR FOR PORT. CAMERAS/
CAMC.

Transmitters



WRT-822B

Beltpack wireless microphone transmitter
with a rugged construction and ultra stable
RF performance.